

# Performance of L3 MuoLocal and CentralMatch (update)

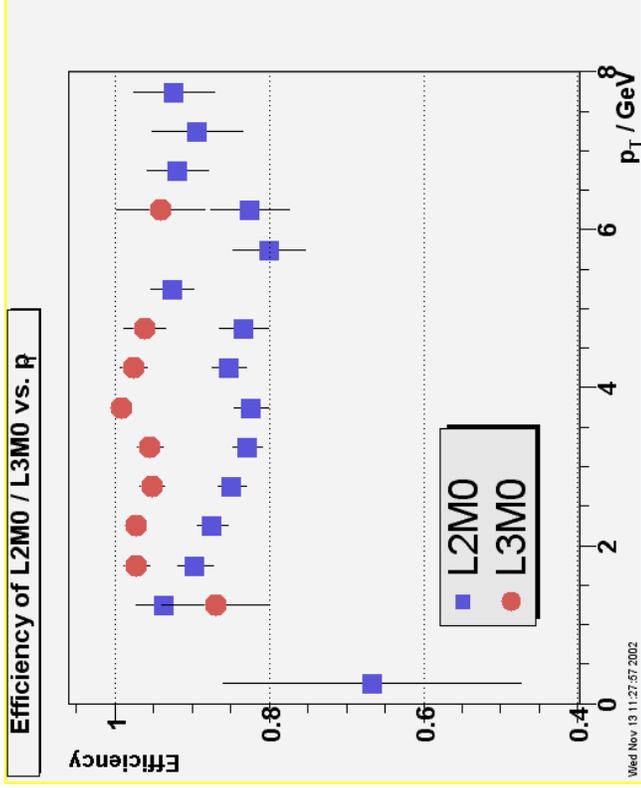
**Martin Wegner, RWTH Aachen**

**Level 3 Filters Meeting, Nov 13, 2002**

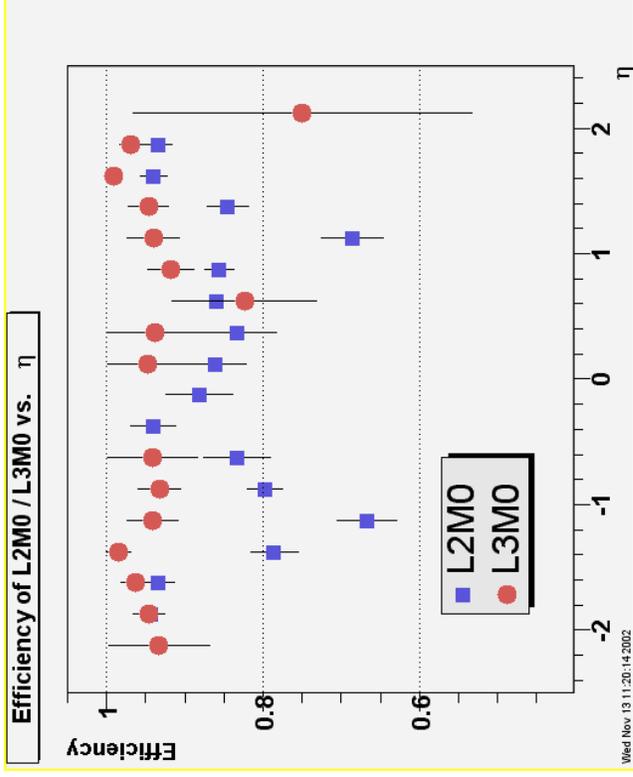
- Comparison of Level 2 and Level 3 Muon Trigger
- Performance of the improved CentralMatch Tool
- pT resolution of the L3 Global Tracker in combination with L3CentralMatch

# Efficiencies in L2 and L3

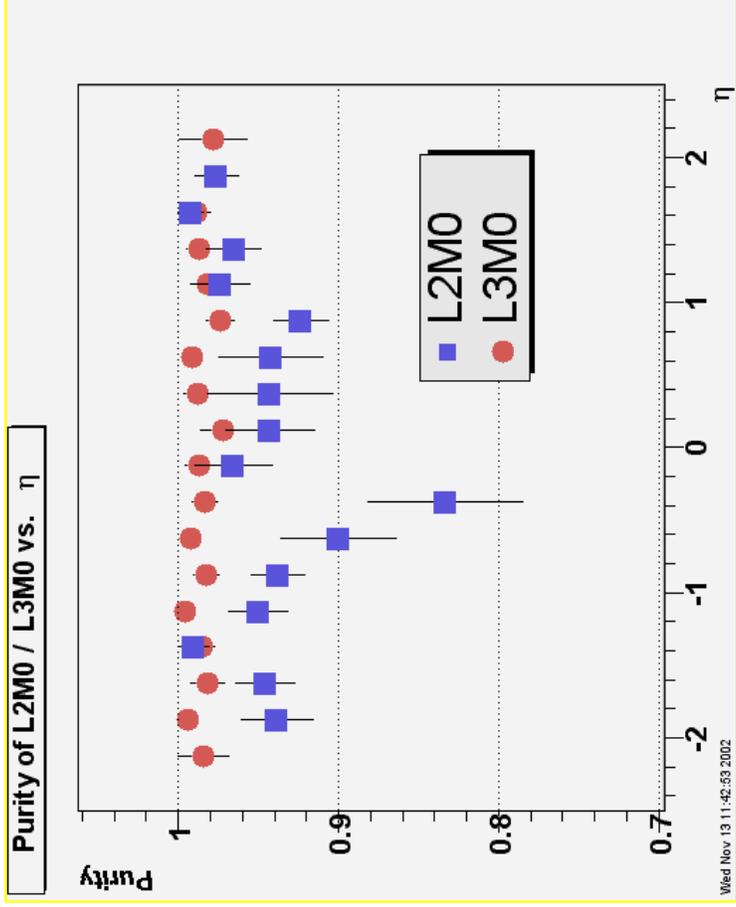
- **Data set:** special muon run, all events taken with (at least) L2L0
- Data processed with TrigSim p12.04, Reco p12.04



- $\epsilon = \frac{\#(\text{offline medium} * \text{triggered})}{\#(\text{offline medium})}$
- **L3 efficiencies are  $\approx 10\%$  higher** compared to L2M0

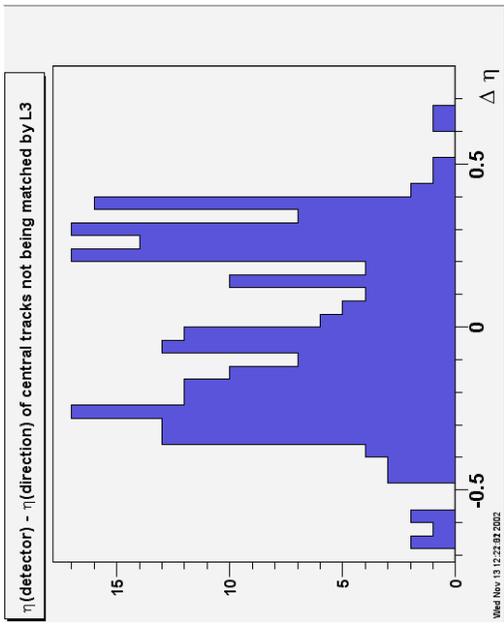
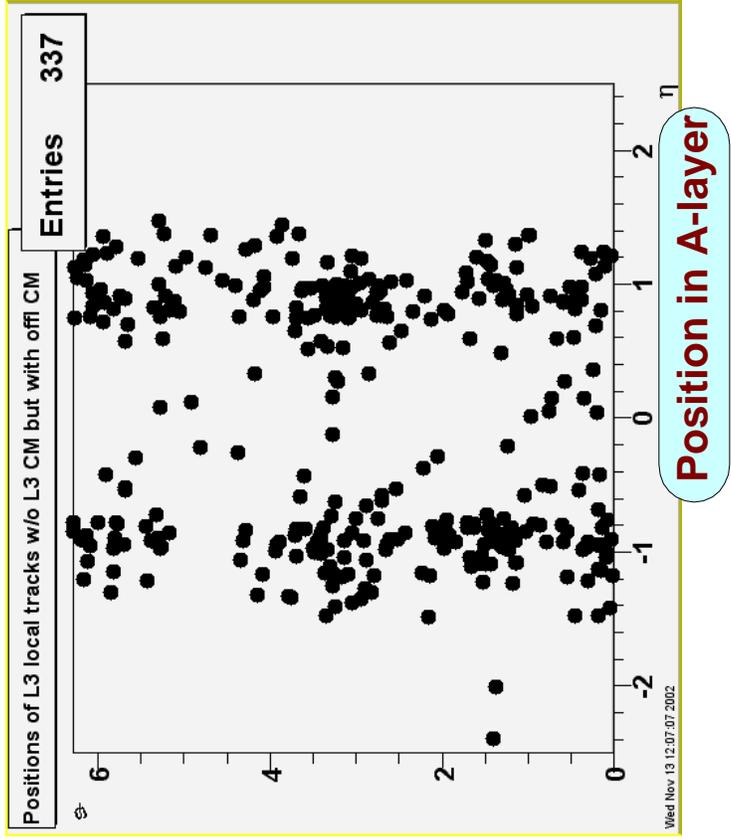


# Purities in L2 and L3



- Purity in L3 is improved by  $\approx 5\%$  compared to L2M0

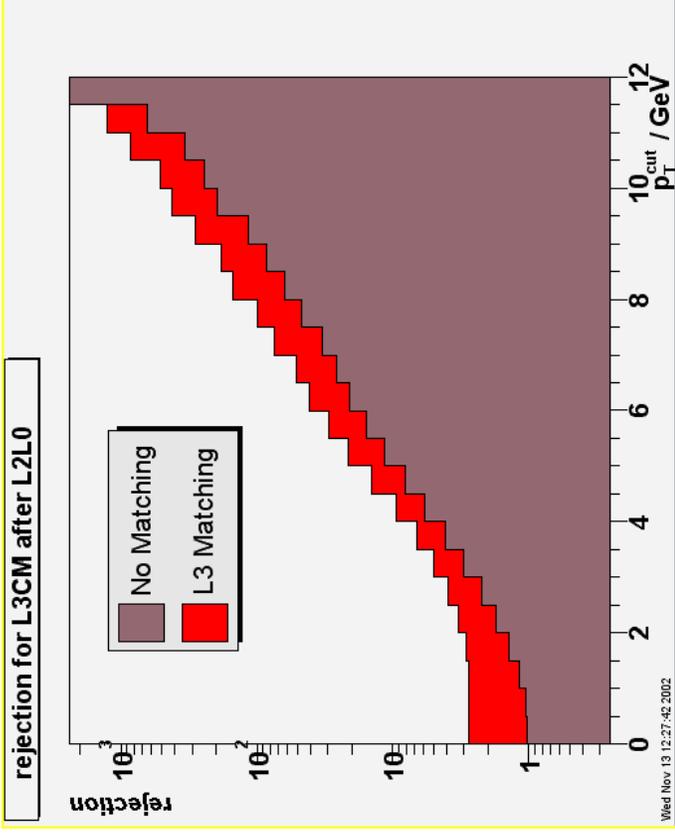
# What about the tracks without L3 CM?



- *Most of the not matched L3 tracks have an "unphysical"  $\eta$ -direction*

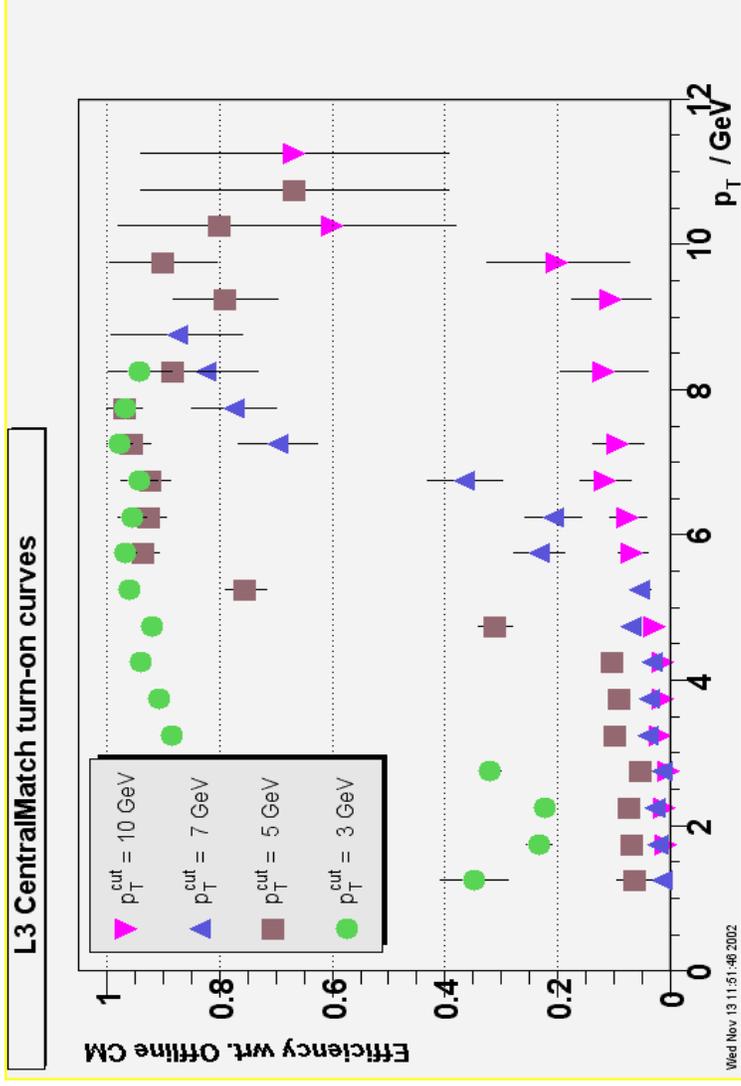
- **337 out of 2925 (11%) muons with offline match are not matched in L3**
- **Virtually all of them are located along the region boundaries ( $|\eta| = 1$ )**
- **Manual event-by-event scanning shows no errors in the algorithm**

# Matching versus Adding a Track Filter



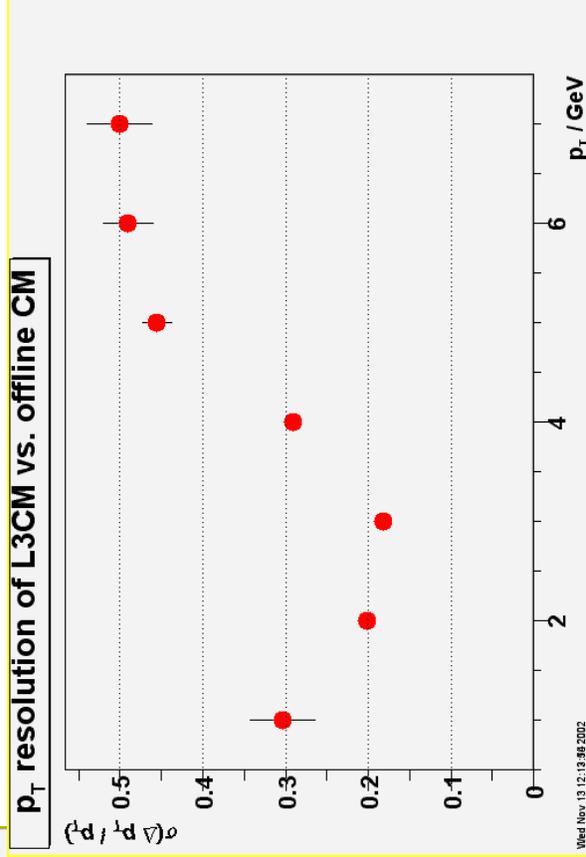
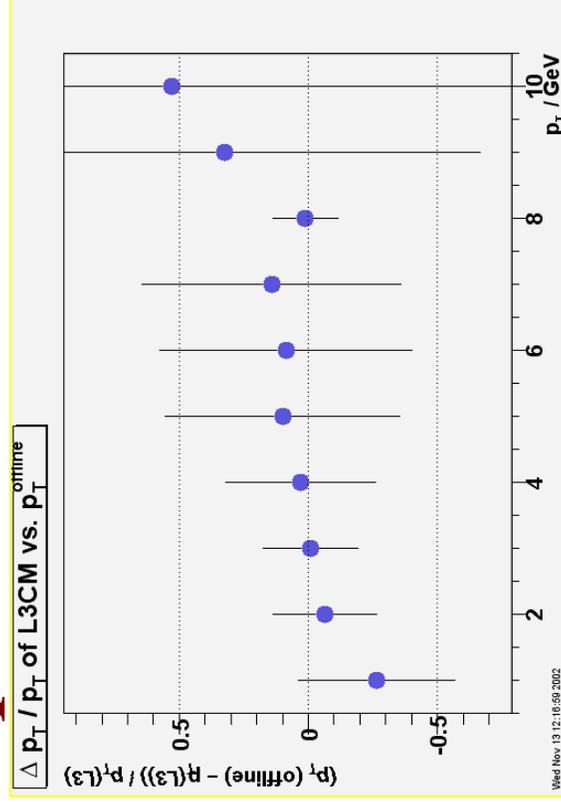
- By requiring a *matching* central track one gains a factor of  $\approx 1.5$  in rejection

# Turn-on curves for L3 CentralMatch



- For  $p_T \leq 5\text{GeV}$  L3CM turns on within 1 GeV
- For increasing  $p_T$  cuts the slopes wash out
- Plateau efficiency  $\approx 95\%$  with respect to offline CentralMatch

# $p_T$ Resolution of L3 Central Tracks



- Only events with exactly one medium offline muon used to avoid mismatching
- L3 and offline muon checked for consistency
- $p_T$  resolution calculated for matching central tracks
- **It could be better!!**